ASSESSMENT OF PATIENTS NEEDING REHABILITATION-

DEVELOPMENT AND VALIDATION

OF A MEASURE FOR PATIENTS ATTENDING PSYCHOSOCIAL REHABILITATION PROGRAMMES

Dissertation submitted to

The Tamil Nadu Dr. M.G.R. Medical University

in part-fulfilment of M.D. Branch XVIII Psychiatry Examination held in March

2009

DECLARATION

I hereby declare that this study was conducted by me under the guidance of

Dr. Jacob John, Professor of Psychiatry, Christian Medical College, Vellore. This has not been submitted to any other University in part or full.

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CERTIFICATE

This is to certify that this study is a bonafide work done by Dr. Namrata J. Charles, a MD Post Graduate in Psychiatry at the Christian Medical College, Vellore, Tamil Nadu, for the session 2007-2009. She has carried out the study titled "Assessment of patients needing Rehabilitation- Development and Validation of a measure for patients attending psychosocial rehabilitation programmes", at the Department of Psychiatry, under the guidance of Dr. Jacob K. John. This dissertation is hereby approved for submission to The Tamil Nadu Dr. M.G.R Medical University as part fulfilment of the requirement of MD Branch XVIII- Psychiatry.

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INTRODUCTION

Health is a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity.[1]

Chronic mental illness affects various areas of a person's life. The role of pharmacological treatment combined with psychosocial treatment plays a major role to improve the overall functioning. Recent studies have been emphasizing the importance of psychosocial interventions to achieve improvements in areas where medicines cannot.

There are a variety of measures looking into impairment in various areas of mental illness. However a comprehensive measure exploring various aspects of impairment and needs of this population is lacking. Hence this study focuses on formation of an objective multidimensional instrument exploring into a person's biological, psychological, interpersonal, social and economic domains.[2] These factors are important as the relationship between changes in actual health status and individual appraisal of their quality of life is heavily influenced by factors related to health per se. Less frequently tapped domains are areas of family, living situation, finances, psychiatric symptoms and religion. However these areas are of special importance and need to be included considering the dependence of chronically ill populations on financial and material support from both families and larger society. Spirituality and religion is an important dimension to be considered especially regarding the significant importance given in our Indian population.

Rehabilitation has emerged as the new interest in psychiatry. There is a need have a scale in this field looking into patient outcome. It would have to measure dimensions like dependency, inactivity in occupation and leisure, social integration/isolation, current symptoms and deviant behaviour. The measure can be expressed as a profile of dimensions, with the total a level of overall functioning. Reliability should be established and validity assessed. The scale should be familiar to the users. Important aims should be to define current

status of the patients, measuring changes brought about by rehab programmes, deciding areas where treatment/service deficit may exist which should be remedied.

The aim of rehabilitation is to obtain the best level of functioning of which the patient is capable in spite of his impairments. It takes into account self care, domestic responsibilities, money management, occupation, leisure habits and social participation, as well as symptoms and medication. These are the variables and can be grouped into medical, occupational and social categories.

Assessment of the individual patient is to be repeated at each stage of rehabilitation as recommended by the working party of the Royal College of Psychiatrists (1980)[3]. So a standard procedure is to be followed. Hall (1981)[4] pointed out that assessments can be quite complex as many professionals and relatives involved.

So there is a **need for scale with features** such as:

-covering main areas of change relevant to rehabilitation

-should be valid and discriminative over range of patients seen

-should separate actual from potential performance and separate status from change

-be acceptable and usable by professionals in rehabilitation

-take a short time to complete

-should allow uniformity in reporting scores

Impairment describes organic and psychological malfunctioning. Disability is related to the consequences of disease and its problems at level of personal experience. Handicap refers to social disadvantages. Rehabilitation status is concerned which the levels of functioning at which disabilities and handicap manifest. Each dimension of the scale defines the content while score refers to the level of functioning. To be universally valid in the rehab field any scale must be able to accommodate a patient who moves from a state of complete hospitalization to one of complete acceptance in the community.[5]

This study aimed to develop a multidimensional assessment tool that would help to plan, document and evaluate psychiatric rehabilitation. The focus would be active participation and integration of goals, assets, deficits, needs, resources and constraints of people involved. The developed tool would be further authenticated using standard instruments validated in the Indian population.

REVIEW OF LITERATURE

Schizophrenia and related psychoses are major mental disorders, which usually start in adolescence or early adult life, and often become chronic and disabling. They are considered a major public health problem in many parts of the world, representing a heavy burden both for the families of affected individuals as well as national health systems. These are group of chronic debilitating psychiatric illness characterized by loss of touch with reality, disorders of thought, behaviour, appearance and speech.

Chronically mentally ill populations are persons who suffer severe and persistent mental disorders that interfere with their functional capacities in daily life such as self care, interpersonal etc. Chronicity was defined as having suffered from symptoms for at least 2 years prior to recruitment.[6] Chronic conditions may be marked by periods of remission or relative freedom from the active symptoms of the disorder. There is usually residual disability and negative symptoms between periods of relapse or flare up of acute symptoms.

Another way to define chronic mentally ill is by using 3 dimensional grids, delimiting those who are severely mentally ill (as by diagnosis), those who are psychosocially disabled (as by social and vocational level of function) and those who are chronically ill and disabled (as measures by duration of symptoms, disability and hospitalization episodes). The 3 overlapping dimensions of diagnosis, disability and duration are the starting point for delimiting the chronic mental population.

Chronic mental illness affects various areas of a person's life. The role of pharmacological treatment combined with psychosocial treatment plays a major role to improve the overall functioning. Recent studies have been emphasizing the importance of psychosocial interventions to achieve improvements in areas where medicines cannot.

While psychiatric disorders in total have a worldwide prevalence of 32.5%, schizophrenia has a prevalence of 1.5% (worldwide). The prevalence of schizophrenia in India is about 1%, this may be due to diagnostic drawbacks rather than decreased number of cases[7].

Disability

As the definition of a severe mental illness and psychiatric disability achieves increasing consensus and specificity, the numbers of individuals with this condition can be estimated more accurately. The Substance Abuse and Mental Health Services Administration (SAMHSA) bases their estimates of psychiatric disability on a definition that also includes functioning in the definition: "…a diagnosable mental, behavioural, or emotional disorder…that has resulted in functional impairment which substantially interferes with or limits one or more major life activities."[8] SAMHSA uses the term "severe and persistent mental illness" similar to the way this text uses the term "psychiatric disability."

In order to operationalize the definition and derive estimates from epidemiological data, SAMHSA defined major functional impairment as one of the following:

1. Either planned or attempted suicide at some time during the past 12 months;

2. Lack of a legitimate productive role;

3. Serious role impairment in main productive roles;

4. Serious interpersonal impairment as a result of being totally socially isolated, lacking intimacy in social relationships, showing inability to confide in others and lacking social support[8].

WHO defines disability as an inability to participate or perform at a socially desirable level in such activities as self care, social relationships, work and situation appropriate behaviour.

People with psychiatric disabilities experience numerous limitations in everyday functioning, some of which include difficulties with interpersonal situations, (e.g., misinterpreting social cues, inappropriate responses to situations), problems coping with stress (including minor hassles, such as finding an item in a store), difficulty concentrating, and lack of energy or initiative (Bond, 1995). Most of these individuals also have marked skill deficits in social skills and interpersonal situations[9].

Chronic mental disorders and their disability highlight variables that contribute to variation in outcome. Protective factors like social support, coping, skill building, competence, transitional programs, psychotropics can buffer the deleterious effects of stress. Degree of psychiatric disability is related to premorbid skill level. Premorbid is the period before the individual becomes ill. Skill levels reduce the intensity of illness.

Schizophrenia is a multiply handicapping, chronic disorder characterized by marked impairments in social role functioning, increased morbidity, and early mortality and poor quality of life. Medication is rarely sufficient to resolve all of these domains of impairment or restore pre morbid functioning. Psychosocial interventions are necessary partners to pharmacotherapy that play critical role if treatment is viewed in the context of the patient's overall level of functioning, quality of life and compliance with prescribed treatments. Schizophrenia tends to be long lasting and often disrupts and stunts the normal intellectual, social and vocational development or lead to conditions where acquired skills are lost due to disuse. This lack of ability whether because skills were never acquired or were acquired and subsequently lost, is the hallmark of psychiatric disability.

The course and outcome of Schizophrenia has been often studied and documented and the components are not listed here in total. However, some of the newer treatment variables are considered in the light of recent reviews and practice[10].

Psycho social treatments can a play an important role in the comprehensive management of schizophrenia not only to augment the effects of medication but also to supplement these effects in the areas where conventional medications alone are less effective (negative symptoms) there is some evidence that psychosocial interventions may be more effective in the more chronic stages of illness and therefore can play a more prominent role in the management of patients with chronic schizophrenia[13].

Beyond the old controversies of management in chronic mental illnesses like schizophrenia, particularly psychotherapy versus medication; a new perspective seems to be emerging that psychosocial interventions can be used beneficially in conjunction with medication and that the combination may actually have an additive or synergistic effect[10]. The emergence of more focused approaches to psychosocial treatment (such as social skills and cognitive training), which attempt to remedy deficits in a specific area of functioning has also contributed to renewed interest in psychosocial interventions in general. Fallon and Lieberman[11], have suggested a synergistic effect for those psychosocial treatments such as family intervention that enhance the coping capacity of the patient's support system. Between 1990 and 2005 a total of 21 Meta analyses of studies assessing the efficacy of various psychological therapies in schizophrenia became available[12].

The most comprehensive of these was conducted by Mojtabai et al[13]. By showing the additional effect of psychosocial treatment approaches to pharmacological treatment, the meta-analysis by Mojtabai et al[13] provide the first solid empirical basis of the multimodal treatment model. They also provided a comparison between different types of psychosocial interventions as shown a table below[12].

Meta-analyses of the Efficacy of Psychological Therapies in Schizophrenia

Therapy Approach	Meta-analysis	Inclusion Criteria	Number of Included Studies
Psychosocial interventions	Mojtabai et al9	Controlled studies	106
	Wunderlich et al10	Controlled studies	31
Psychodynamic therapy	Malmberg and Fenton11	Randomized controlled studies	3
Hypnosis	Izquierdo de Santiago and Kahn54	Randomized controlled studies	3
Token economy	McMonagle and Sultana14	Randomized controlled studies	3
Social skills training	Pilling et al6,7	Randomized controlled studies	9
Cognitive remediation			5
Family interventions			18
Cognitive behavioural therapy			7
Social skills training	Benton and Schroeder16	Controlled studies	27
	Corrigan17	Observational and controlled studies	73
Cognitive remediation of executive functions (Wisconsin Card Sorting Test)	Kurtz et al26	Laboratory and controlled studies	11
Cognitive remediation of attention	Suslow et al27	Laboratory and controlled studies	9
Cognitive remediation	Krabbendam and Aleman28	Controlled studies	12
	Twamley et al29	Controlled studies	17
	Hayes and McGrath30	Randomized controlled studies	3
Integrated Psychological Therapy	Müller et al31	Controlled studies	28
Family interventions	Pharoah et al40	Randomized controlled studies	28
	Pitschel-Walz et al41	Controlled studies	25
Cognitive behavioural therapy	Jones et al58	Randomized controlled studies	19
Cognitive behavioural therapy of positive symptoms	Tarrier and Wykes49 and Tarrier50	Controlled studies	20
	Gould et al51	Controlled studies	7
	Rector and Beck52	Controlled studies	7
	Zimmermann et al53	Controlled studies	14

Associated in the psychosocial management one finds factors like family and community support; absence of/ recovery from substance abuse, shorter duration of untreated psychosis, good initial response to neuroleptics, adherence to treatment, supportive therapy with collaborative therapeutic alliance, good neuro-cognitive functioning, absence of deficit symptoms and a good pre-morbid history are important in the outcome and management in schizophrenia[14].

Symptoms: Positive symptoms are considered as a distinct symptom pattern associated with the clinical course over time[15]. In 1980; T.J. Crowe[16] classified schizophrenia and according to his theory type 1 schizophrenia patients are those who present more often acutely with a predominantly positive symptom profile and who have a good response to neuroleptics. On the other hand, negative symptoms-reflect a diminution or loss of normal function (flattening of affect and poverty of) speech[15]. They are more associated with poor long term prognosis. They are more commonly a part of type II schizophrenia with a illness of more chronic course, frequent intellectual impairment, enlarged ventricular size and cortical atrophy with a poorer response to neuroleptics.[16] It may be primary (represent an intrinsic feature) or secondary (extrinsic factors) or other intrinsic psychological factors.[17]

Cognitive symptoms- they are experienced as neuropsychological deficits characterized by difficulties in attention, information processing, executive functioning, learning and memory which leads to a generalized performance deficit. They have a significant negative impact on the social and occupational functioning.[18] They are also strongly associated with the degree of negative symptoms, symptoms of disorganization and adaptive dysfunction.[19]

Concomitant conditions: Concomitant psychiatric conditions can coexist with schizophrenia. About 80% of patients have major depression as coexisting state or depressive symptoms that can precede the psychosis. Anxiety is associated with depression in schizophrenia. There is a 15-25% prevalence of patients with obsessive compulsive disorder in schizophrenia. There is a 25-40% prevalence of coexisting panic attacks which usually mimic a prodrome of schizophrenia. Concomitant Substance abuse is associated with poorer function and there is an overall 40-50% prevalence of other illicit drug use. Smoking has a prevalence of 90% and alcohol abuse has a prevalence of 40%[20.] In schizophrenia there is decreased social function and a downward drift in socioeconomic status with associated poor access to medical care. This has a direct impact on health. Conditions like metabolic syndromes are prevalent and

can be secondary to antipsychotic medication, poor nutritional balance and decreased motor activity leading to increased risk of cardiovascular morbidity. There is a high risk of HIV infection in patients with schizophrenia which can be associated with increased risk behaviours[20]. People with concomitant conditions have a poorer prognosis in general and need additional intervention.

Antipsychotic induced adverse effects, especially extra pyramidal side effects, sexual disturbances, and subjective symptoms can be distressing and are generally stated to be of importance in the context of noncompliance. Significant distress may result from akathesia with higher rates of suicide reported. The subjective well being and quality of life can be severely affected by adverse side effects of medication prescribed[21,22]. The clinician is expected to keep this in review.

Stress, Coping and Social Skills: Folkman and Lazarus have defined coping as a person's constantly changing cognitive and behavioural efforts to manage an encounter appraised as stressful. Birchwood and Cochrane found that relatives of patients with schizophrenia employed a broad range of coping styles in response to behavioural changes in patients. Both emotion-focused and problem-focused coping lead to reappraisal of the stressful event, i.e. patients' illness. Within the past two decades, the standard of treatment of individuals with severe and persistent mental illness has expanded from reducing their symptoms to improving their social and instrumental role functioning[23] (National Institute of Mental Health [NIMH] 1991). This expanded treatment—variously labelled bio-psychosocial treatment, psycho-educational treatment, or psychiatric rehabilitation—is based on the premise that role functioning is a product of an individual's skills and motivation and of the environment’s rewards, opportunities, and demands. Functioning can be improved by a combination of

enhancing the individual's skills, increasing the environment's opportunities and rewards, and reducing the environment's demands.[24]

Social Skills are skills that help disabled individuals establish the emotional, social, and intellectual skills needed to live, work and learn in the community with the least amount of professional support. Related and also important are skills in activities of daily living (ADL) – Patients with chronic mental illness show significant deficits and need for support in both basic and instrument ADL, particularly the later. These are required to maintain personal hygiene, health, meet personal and social responsibilities and to maintain social relations. Social Skills Training is a targeted treatment achieving important social outcomes when used in conjunction with other critical interventions like pharmacotherapy, case management, environmental supports.

Compliance also called as adherence and is the degree to which a patient carries out the clinical recommendations of a treating physician. It is best understood in dimensional terms as there are varying group of patients fully compliant or partially compliant or non-compliant. Only about one third of patients suffering from a schizophrenic disorder are reported to be fully compliant, another one third are said to be partially compliant, meaning that these patients will either reduce the dose of the drug prescribed or fail to take medication from time to time the remaining patients do not follow the prescriptions at all. Patients with schizophrenia are especially vulnerable to relapse following medication noncompliance[25].

Personal reaction to illness / treatment (stigma) Stigma exists, associated with the illness and it is pernicious[26]. It includes negative attitudes and stereotypes directed at patients and their families. It can manifest itself internally by patient that they are defective, by family who marginalize the patient and society which discriminates and places barriers. Different fears and prejudicial judgments may be in the foreground of stigma in different cultural settings. What is common is that the negative opinion will stay stable even after all the symptoms of

the disease has disappeared and after it has been possible to show that the individual concerned can work and fulfil his social roles at least as well as his fellow citizens.

Psychiatric aspects of work problems include vocational maladjustment. These can arise during stressful changes in workplace. These can be unprovoked job loss, rejection and discrimination. Men are more affected as they define themselves by their work roles. Supported employment is one of the most innovative and promising rehabilitation approaches from the last decade. A place and train model help people find competitive jobs more effectively than sheltered employment[27].

Poor insight is a common feature in schizophrenia and generally means a lack of awareness that one has a problem. Insight may exist in one aspect of the illness but may be lacking in another aspect. It can vary over time and educating a patient can change the level of insight. Deficit schizophrenia appears to have poor insight especially related to their poorer cognitive impairment. The different aspects of insight can be awareness of symptoms, of impairment, of the views other people have of the patient, attribution, need of treatment and effects of treatment[20].

Schizophrenia and family burden- its importance.

The high prevalence and chronic course of schizophrenia are responsible for a major social cost. According to Treudley (1946) "burden on the family" refers to the consequences for those in close contact with a severely disturbed psychiatric patient. Grad and Sainsbury (1963) and Hoenig and Hamilton (1966) developed the first burden scales for caregivers of severely mentally ill patients, and a number of authors further developed instruments trying to distinguish between "objective" and "subjective" burden. Objective burden concerns the patient's symptoms, behaviour and socio-demographic characteristics, but also the changes in

household routine, family or social relations, work, leisure time, physical health. Subjective burden is the mental health and subjective distress among family members[28].

The important role of families and other caregivers in the lives of adults with schizophrenia is well documented. Persons with schizophrenia frequently live with their families of origin and the vast majority have regular family contact. Families of persons with schizophrenia have also been demonstrated to have significant needs. Families most frequently cite the need for education and support in helping them to cope with their family member's illness. Another major factor which has emerged as important are expressed emotions in the family. Expressed emotion is the attitude that the relatives show towards the illness and the person with the illness; it could be critical, hostile, and emotionally over-involved. Recognizing and intervening with families showing high expressed emotions is recognized to reduce relapses and levels of distress and disability.

There is a higher rate of illness in unmarried than married patients. But the illness lessens the chances of marriage. Married men have a better prognosis. Marital crises can be precipitated by onset or exacerbation of illness. Adequate management involves reducing immediate stress and enhancing the healthier partner's coping capacity[29].

Safe and acceptable housing is a critical element for patients with chronic illness to maintain themselves in the community. There are now a spectrum of community based services and housing options that provide protection, social support, recreation, work, nutrition, security and supervision. Obstacles to access these facilities are impairments related to patient's illnesses like deficits in social and independent living skills, severe psychotic symptoms, environmental barriers and discrimination[14].

The proportion of violence in society attributable to schizophrenia is small. Co morbid substance abuse increases the risk of violence. Patients also have increasing risk of being victims of violence. Conviction of a crime is based on the presence of a mental disorder,

presence of defective reasoning, lack of knowledge of nature of the act and incapacity to refrain from the act[30].

There is a significant association between life events and onset of psychosis. Stressful life events occurring 3 weeks preceding onset or relapse of symptoms are important. Other risk factors are environmental and psychosocial factors. These adverse effects might be precipitated by pre-existing psychopathology or personality traits of the patient.

Services and resources in the community are important in any form of disability. This would include service delivery, utilization, finance, quality of care and outcomes research. There are a large number of people with poor access to expert care and evidence-based practices are difficult to implement. Service delivery can be improved through public mental health promotion, educational programmes and health policy reforms. Integrated treatment for patients with schizophrenia needs an infrastructure with a continuum of medical and psychosocial services. Community organized services is needed for providing support and access as well as mainstream services like housing and vocation. Available public schemes have a further limitation in that they do not necessarily reach the most vulnerable populations. An effective health care system must be in constant conversation with the community which it serves and respond to the needs[31].

Though interest in Quality of Life especially that of the mentally ill has been the concern of psychiatrists and social workers for a long time, the concept has been defined and operationalised only recently. A variety of terms have been used, e.g. subjective well being, subjective QOL, health related QOL; but currently consensus seems to be emerging around the uniform term ‘Quality of Life’.

The QOL of an individual has to be seen within the broad perspective of the socioeconomic and cultural environment in which the individual lives. The standards,

values and norms for the measurement and interpretation of QOL have to be relevant and are dependent on the environment of the individual.

Most instruments used for assessing QOL were constructed in the developed countries of North America and Europe and their cross cultural compatibility has not been demonstrated. QOL assessment has been extremely rare in India. One of the important reasons for this is non-availability of a suitable instrument. The subjective well being inventory has been developed as a QOL instrument in India but it appears to be more suitable for general population than for ill patients[32]. QOL is believed to be a broader concept, incorporating in a complex way individual's physical health, psychological state, level of independence, social relationships, personal beliefs and his or her relationship to salient features of the environment. Instruments measuring health related QOL have been classified into descriptive or actual versus subjective or perceptive instruments. WHO QOL is unusual in that it purposively puts the two aspects as equal in each facet specific score[33].

Psychiatric rehabilitation: has a long and storied role in the history of psychiatry. Rehabilitation and treatment have the same ultimate aims of restoring individuals to adaptive functioning with a good quality of life. It can be defined as a process in which the social disablement which accompanies or follows psychiatric disorders is identified and negated whilst enabling the patient simultaneously to acquire social skills, confidence and self-esteem.

Although treatment focuses on removing symptoms that are obstacles to a functional and satisfying life, rehabilitation focuses on building skills, teaching problem solving and resilience, and crafting personal, social, educational, and occupational supports that are instrumental to a functional and satisfying[34].

With the recognition that most psychiatric disorders are associated with severe and persisting disability and the development of effective procedures for improving the long-term outcome of patients, the term "psychiatric rehabilitation" is becoming routinely used in the mental health field. Psychiatric rehabilitation has begun to take its place as a viable, credible intervention approach, even infiltrating professionals' jargon and administrators' program descriptions. The field of psychiatric rehabilitation has progressed to the stage where its history can be traced; its conceptual base and treatment strategies described; its practice observed, monitored, and replicated; and its future growth anchored in a research foundation[35]. Experience and consequences of mental illness vary considerably from person to person. One person may be severely disabled throughout the course of his/her life; while another may cope well and overcome disability.

Experience and consequences of mental illness vary considerably from person to person. One person may be severely disabled throughout the course of his/her life; while another may cope well and overcome disability. Rehabilitation is any action intended to reduce the negative effects of the disease on the person’s everyday life. Rehabilitation process has a direct and positive effect on the disease[36].

Psychiatric rehabilitation has long been associated with helping people with forms of schizophrenia. This association arose because early work done in the late 1970s focused on residual inpatient groups (typically people with schizophrenia) who were considered difficult to deinstitutionalize. As inpatients were transferred to the community and more rehabilitation services were delivered in the community, rehabilitation began to become associated with helping people who had psychiatric diagnoses that ran the gamut of serious mental illnesses (e.g., severe depression, personality disorder, dual diagnosis, etc.).

In short, since the 1970s the description of a severe mental illness has included the negative impact on an individual's occupational, social, and residential roles. As this understanding and description of a "serious and persistent mental illness" has become increasingly prominent over the last several decades, so too has the field of psychiatric rehabilitation. Psychiatric rehabilitation is the only mental health service that specifically emphasizes improving role performance and is based on a conceptual model that recognizes the negative consequences of a severe mental illness in terms of impairment, dysfunction, disability, and disadvantage[37].

Assessment in rehabilitation

A thorough assessment of an individual's disablement is a mandatory aspect of the rehabilitation process as it determines the long-term goals. Although the different rehabilitation networks have similar objectives, their component parts vary, since these are dependent on local resources and support services[38]. To improve and increase reliability of methods of diagnosis and symptoms; functional assessments and needs of patients requiring psychiatric rehabilitation are a necessity. Engagement and assessment processes emphasize the importance of focusing on the rehabilitation goals endorsed and validated by the individual[39].

Persons with psychiatric disability who have diagnosed mental illnesses that limit their capacity to perform certain tasks and functions (e.g., interacting with family and friends, interviewing for a job) and their ability to perform in certain roles (e.g., worker, student).

They are divided into subgroups are categorized by age (e.g., senior citizens, young adults), location (e.g., homeless, independent apartments), culture, or additional diagnoses (e.g., physical disabilities, developmental disabilities, substance abuse).

Psychiatric rehabilitation begins with a comprehensive and detailed assessment of the individual's current functioning. The assessment is focused on the "degree to which the individual's abilities and performance match the demands of his or her home, work, school, family, and social situations. By comparing the functional skills and resources possessed by the individual to those required to maintain community tenure, one gleans information about functional areas of strengths and deficits. Treatment is targeted at deficit areas." [40]

Conceptual framework for rehabilitation: There is no consensus among rehabilitation researchers on what rehabilitation actually does accomplish. The overall philosophy of psychiatric rehabilitation comprises two intervention strategies. The first strategy is individual-centred and aims at developing the patients to interact with a stressful environment. The second strategy has an ecological approach and is directed towards developing environmental resources to reduce potential stressors. Most disabled people need a combination of both approaches.

Multidimensional rehabilitation keyed to phase of disorder: The practice of psychiatric rehabilitation joins 3 major sets of factors that protect against stress and vulnerability; Pharmacotherapy tailored to the type and severity of psychopathology at minimum effective dosages that do not produce side effects that interfere with positive engagement in rehabilitation. Development of skills so that the patient can integrate socially as well as meet the challenge of stressors and life situations that demand adaptation and independence: a range of supportive social services, including housing, transitional and supportive employment, financial support, and case management to sustain a mentally disabled person in the community. If engagement is the first step on the road to successful psychiatric rehabilitation, assessment is the road map for the journey, and adherence keeps the roadway cleared of obstacles to treatment. Success is measured by the journey, not the destination, and

the journey toward rehabilitation must be guided by empirically based assessment procedures.

The assessment of the individual patient needs to be repeated at each stage of rehabilitation (Recommendations, Royal College of Psychiatrists (1980)[3]. Hall (1981)[4] pointed out that assessments may be quite complex, as they involve patients, their family members and others. it would appear that there is a need for a scale which offers the following features: a) it should cover the main areas of change relevant to the rehabilitation of psychiatric patients; b) it should be valid and discriminative over the full range of people encountered; c) it should separate actual from potential performance, and separate status from change; d) it should be acceptable to and usable by the professions involved in rehabilitation; e) it should take a short time to complete; f) it should allow uniformity in reporting scores. Within diagnostic classifications different patterns of symptoms may require different psycho social contingencies to maximize social functioning. Paranoid schizophrenics respond differently to social reinforcement from schizophrenics with non paranoid symptomatology[41]. Progress in the psychosocial rehabilitation of the chronic patient requires a careful analysis of the interaction between the patient and his social environment. As well as features of the environment, patient variables relevant to this interaction may include: premorbid social incompetence, current social skills, cognitive deficits, persistent psychopathology and the side effects of medication[42].

Multiple instruments are available for assessing a variety of outcome domains, including indices of competence and real world outcomes. it is important to separate the content domains of outcome and potential disability, which include social, vocational, self care, and independent living , from the methods used to assess these domains.

Various measures for assessment of different aspects of needs and impairment in a population of those with chronic mental illness do exist. Severe psychiatric disorders, i.e., schizophrenia, major depression, and bipolar disorders are a major public health concern, as people with these disorders experience significant disability with regard to function. However, a comprehensive tool suitable for patients in the socio-cultural context of India is lacking. Hence this study focuses on formation of an objective multi-factorial instrument exploring into a person's biological, psychological, interpersonal, social and economic domains. These factors are important as the relationship between changes in actual health status and individual appraisal of their quality of life is heavily influenced by factors related to health per se. Less frequently tapped domains are areas of family, living situation, finances, psychiatric symptoms and religion.

Rating scales

Use of assessment technology, such as reliable rating scales and patient-oriented treatment planning instruments which will permit repeated administration and information feed back to clinicians and consumers for adjusting behavioural interventions and making them more effective. Eg: CASIG - Client assessment of strengths, impairment and goals. A scale that attempts to document rehabilitation - it is a multidimensional assessment tool that helps to plan, document and evaluate psychiatric rehabilitation. There should be active participation and integration of goals, assets, deficits, needs, resources and constraints of people involved. Areas looked into include functional living skills, subjective quality of life, presence of symptoms, medication side effects, compliance with medication and community behaviours. Information collected from patient in a 60-90 minute interview in collaboration with significant others[43].

Rating scales are available to assess patients undergoing rehabilitation for chronic psychiatric disorders. Few are universally acceptable because of pitfalls in their structure or administration. Hall and Baker's REHAB3, though popular, is bulky, time-consuming and expensive.

Bio-psycho-social assessment and intervention are an ongoing process and treatment consists of recurring cycles of assessment, planning and service delivery. This pattern proceeds through the patient's journey from acute episode to stabilization, rehabilitation and if successful recovery[14,43].

A good rating scale should consist of not too many items and not too few and they should have been selected by both the intuition of clinical experience and by the statistical process of item analysis but unfortunately these desiderata apply to very few scales.

It is unusual for others workers to attempt the analysis of the items of a published scale. However both the Hamilton and the Beck depression scales were subjected to a careful item analysis by Bech et al (1975). They found that subscales of both scales led to an improvement in sensitivity. Improvement may come about through the use of an existing scale as was the case when Robertson and Mulhall (1979) applied a grid scoring method to an obsessional scale, the Leyton Obsessional Inventory[44,45,46].

There has been a recent trend to encourage routine outcome measurement and needs assessment as an aid to decision making in clinical practice and patient care. Such measures might usefully be applied to aid the recognition of psychosocial problems and to monitor the course of patients' progress over time in terms of disease severity and associated deficits in health related quality of life. They might also be used to help clinicians to make decisions about treatment and to assess subsequent therapeutic impact. In schizophrenia, standardized instruments traditionally define disease severity and change in clinical status by counting the

number and severity of symptoms and signs – such as delusions and hallucinations years[47,48,49,50].

Outcomes measures have come to be used for a number of purposes, which include: 1. the evaluation of the clinical and cost effectiveness of interventions in experimental situations such as trials, 2. The monitoring of population health, 3. clinical audit and 4. Facilitating clinical decision making in routine practice and patient care.[51, 52, 53, 54].

A related development has been the introduction of formal 'needs assessment' tools in the care of those with severe and enduring mental illnesses, such as schizophrenia. Such needs assessment tools are intended to define health and social needs at both a population level and, ideally, at an individual level[55], so that healthcare provision might be more rational, responsive and 'appropriate'[56,57]. Examples of individual patient needs assessment tools for use in severe mental illness include the Camberwell Assessment of Need (CAN)[58] and the MRC Needs for Care Assessment[59].

When used as aids to decision making in routine care, outcome measures and needs assessment tools are thought to be useful in improving patient care in a number of ways. Firstly, they may identify problems which might not otherwise be recognized by clinicians or those responsible for care. For example, clinicians are often unaware of a substantial proportion of a patient's social and psychological problems[60], and the identification of these problems might trigger an appropriate response and improve the overall quality of patient care. Secondly, they function as mechanisms for monitoring the course of patients' progress over time enabling informed decisions about treatment and assessments of subsequent therapeutic impact to be made. Thirdly, surveys have suggested that clinicians find these data useful in formulating a more comprehensive assessment of the patient[61,62]. Finally, patients often welcome the opportunity to provide clinicians with information regarding their health

status, particularly when they perceive that this information is not otherwise comprehensively assessed, thus aiding effective patient doctor communication[63].

The routine measurement of outcome has not been without its critics[64], and concerns have been raised that outcomes measures are un-interpretable, unwieldy and a bureaucratic hindrance to successful patient care. One way in which the success or usefulness of outcome measures in everyday routine care might be judged is by evaluating of the degree to which their adoption improves the outcome and quality of care. The results of research in other specialities have generally not been positive in this respect[65], nor has the use of these measures been shown to improve the management of common psychiatric disorders in non-psychiatric settings[66].

The rating scales that have been reviewed for factors in this study include the following:

CASIG[43] (a consumer-centered assessment for planning individualized treatment and evaluating program outcomes) has been described above.

IDEAS[67] (Indian Disability Evaluation and Assessment Schedule)- It is made up of items i.e., self care, interpersonal activities, communication and understanding and work.
It matched with above factors listed especially in areas of psychopathology, interpersonal issues as well as work/employment. Additional factor of communication and understanding emerged and was incorporated into the list of factors

LIFE[68] (Longitudinal Interval Follow up Evaluation)- Areas covered here are Psychopathology (psychiatric status, suicide, alcohol abuse), Non-psychiatric medical illness, Treatment (psychotropic drugs, ECT, psychotherapy), Psychosocial functioning (work, household, student, interpersonal, sexual, satisfaction, recreation, global), Overall

severity and Narrative account. The similar factors here with that of meta analysis factors were substance abuse, medical complications, interpersonal difficulties, sexual difficulties, recreation, work related issues, housing and global satisfaction.

LIFE-RIFT[69] (Longitudinal Interval Follow up Evaluation)-The range of impaired functioning tool)-It measures functional impairment and is comprised of items i.e., Work [which includes Employment (impairment in current work activity), Household (impairment in current household work), Student (impairment in current school work)], Interpersonal relations (with spouse, children, others, friends), Satisfaction and Recreation. The matching items here with above factors were Relative/family problem, Employment issues, Housing and Global satisfaction.

KENNEDY AXIS V[70]- It measures 7 functional domains and they are Psychological impairment, Social skills, Violence, ADL (Activities of daily living)-occupational skills, Substance abuse, Medical impairment and Ancillary impairment (life situation).
The areas of overlap here were Psychological impairment due to medication effects, cognitive symptoms, Social vulnerability to abuse and social anxiety, Activities of daily living, Employment related issues, Finance (Budget), Homelessness (Housing) and Criminal behaviour (Legal issues).

MRSS[38] (Morning Rehabilitation Status Scale)- is a scale used in rehabilitation and is comprised of Dependency scale (independence with regard to self care, economics and medication), Inactivity scale (initiated and sustained activity and performed effectively), Social integration/isolation scale (frequency of contact and social competence) and Effect of current symptoms and deviant behaviour scale (subjective symptoms, attitude to medication, difficulty to

organize routine). The areas matching were Psychological reactions to diagnosis and treatment as well as medication effects, Dependency (poor drug compliance, ADL, Finance), Residual positive symptoms, Negative symptoms and defect state, Poor social skills and Inactivity (work, recreation).

CAN[58] (The Camberwell Assessment of Need)- is an instrument to assess needs of people with severe mental illness and consists of items which are Accommodation, Food, Household skills, Self care, Occupation, Physical health, Psychotic symptoms, Information about condition and treatment, Psychological distress, Safety to self and others, Alcohol, Drugs, Company of others, Intimate relationships, Sexual expression, Child care, Basic education, Telephone, Transport, Money and Welfare benefits.

The areas of matching here are Psychological reaction to diagnosis and treatment, Residual positive symptoms, Co morbid substance abuse, Medical complications, Interpersonal difficulties, Sexual difficulties, Poor social skills, Recreation, Looking after home, self care etc (ADL), Finance and Legal issues.

CROS[71] 3.0 (Consumer Recovery Outcomes System)- is an assessment procedure to evaluate recovery oriented clinical status and progress in patients with severe and persistent mental illnesses form perspective of consumer and clinical staff member. Scales comprising it are Treatment satisfaction, Daily functioning, Coping with clinical symptoms, Quality of life and Hope for the future. It assesses 4 main domains and they are Hope for the future, Daily functioning, Coping with clinical symptoms and quality of life. The consumer form also has an assessment of treatment satisfaction. The matching areas are psychological reactions to diagnosis and treatment, ADL, Hope and Global satisfaction.

Finally, with improved and more reliable methods of diagnosis, symptom and functional assessment, an empirically validated definition of recovery, the population and needs of patients requiring psychiatric rehabilitation are becoming better defined.

Use of assessment technology such as reliable rating scales and patient oriented treatment planning instruments, which will permit repeated administration and informational feedback to clinicians and patients for adjusting psycho social interventions and making them more effective. The field of psychiatric rehabilitation is maturing rapidly and has already made significant contributions to the well being of patients with serious and disabling mental disorders. One can be confident that this emerging field will magnify its therapeutic impact on clinicians and those whom they serve.

AIMS AND OBJECTIVES

To develop and standardize a measure to assess impairment, functioning and needs of patients with chronic mental illness.

To validate the developed measure against standard validated scales.

MATERIALS AND METHODS

Development of the measure

1. Nature of the measure

The measure was an inventory based type of measure formulated to be used in a psychiatric rehabilitation setup. It had a clinician mode of rating and the information was gathered from multiple sources and collected in face to face interviews. The measure formed was simple and easy to understand. It was dimension, culture and individual specific.

2. Procedure

A) Development of the assessment tool: was through standard steps as required for developing a tool. The stages were conceptualization, item panelling, allocation to domains, rank ordering of constituents, trailing and item reduction.[77]

Conceptualization: Based upon the preliminary qualitative investigations and previous research or measurement tools, individual measurement items were generated that covered the spectrum of what the measure has to examine. An inventory based search of various well known and standardized scales in psychiatry (focusing on scales measuring deficits and needs of patients) developed for the assessment and evaluation of patients with chronic mental illness were compared. Some of these scales had already been standardized in the local context. In addition, recent meta-analysis looking at the psycho-social treatments and outcome of chronic mental illness was used.[12] Scales used were Kennedy Axis V, LIFE scale (Longitudinal

Interval Follow-up Evaluation), LIFE-RIFT (Range of Impaired Functioning Tool), MRSS scale(Morningside Rehabilitation Status Scale), IDEAS (Indian Disabilities Evaluation and Assessment Scale), CAN (Camberwell Assessment of Needs) CROS 3.0 (Consumer Recovery Outcomes System) and CASIG scale(Client Assessment of Strengths, Impairment and Goals).[38,43,58,67,68,69,70,71] All the constituents obtained from these scales were listed. Key themes which were generated from them Compliance, Psychopathology, Positive symptoms, Negative symptoms, Affective symptoms, Cognitive symptoms, Co-morbid substance use, Stress factors, Family factors, Vulnerability to abuse, Activities of daily living, Work, Legal factors, Hope & Global satisfaction.

Further items were added after interviewing mental health experts according to their inputs. Additional factors derived were added to the list of themes. The items were then listed on cards and presented to experts in rehabilitation and asked to sequence and group. The items were then reduced to 22 domains.

The conceptual equivalent and the various rules of item wording were followed. Once the items were finalized; item panelling was done.

Allocation of items to domains: It was done by card sorting procedure in order to specify the domains. These domains were Patient compliance, Treatment related factors, Personal reactions to illness and treatment, Medication side effects, Presence of psychopathology, Concomitant psychiatric conditions, Concomitant substance use, Concomitant physical conditions, Significance life events, Influence of family, Social factors, Activities of daily living, Work and employment, Finance, Housing, Legal/criminal issues, Hope & plans and Global quality of life. These items were printed out and affixed to pieces of card sheets and read aloud to the experts. Those

items sharing a common feature were put on a same pile. This procedure was continued until every item was put on a particular pile. Those items which repeated were removed. For each pile; a term was chosen that characterized the content of the items. (18 domains and 111 items) According to the various experts' opinion; rank ordering of the constituents was done. The items were then reduced to 22 domains with 50 items.

Trailing was the first psychometric field test. It was done on 20 patients who gave feedback on ambiguities, offensive questions, difficult or time-consuming portions of the instrument as well as additional issues that needed to be addressed from a patient's point of view. The instrument was revised based upon pilot testing using the experts rank order. This measure was named ADAPT by its developers (Assessment of Determinants Associated with Psychosocial Treatment) (Appendix 1).

The domains were subdivided into various items, which in turn had sub items. The items were further modified into sentences and the sub items describing them were incorporated into a manual (Appendix 2). In this way a 22 domain measure with a total of 50 items were formulated.

The ADAPT scale was administered using all available sources of information – patient, family or close friends and day care staff if appropriate referring to the 3 months prior to the interview. All these 50 items carried a response format of Yes/No for each item. The questions were worded in a way that a "YES" answer was loaded with a poor outcome.

B. Validation of the ADAPT: was done by selection of patients. The developed measure was applied and validity checked against established tools (Convergent validity).[76]

Patients fulfilling inclusion criteria and consenting to be seen were included and assessed on ADAPT (second psychometric field test). A brief socio-demographic profile (as in Appendix 3) was collected. In addition, the IDEAS, WHO-QOL BREF version and Global Assessment of Functioning were also administered to check on correlation and for convergent validity with the ADAPT. All patients were accounted for in analysis and there were no missing data.

Setting: This was carried out in the Department of Psychiatry Unit III, Christian Medical College, Vellore on consecutive patients over a period of six months. All out patients who were diagnosed to have schizophrenia as per available records attending a regular OPD day were screened for inclusion and exclusion criteria were taken. At each visit, the first 5 of those fulfilling the inclusion criteria were selected.

Inclusion criteria: Patients above the age of 18 years fulfilling the ICD 10 classification for chronic period of psychosis with or without affective symptoms for a minimum of 2 years duration.

Exclusion criteria: Children or adolescents with mild to moderate mental retardation , learning disabilities, dementia, primary problem of substance abuse.

Assessments:

The investigator evaluated each person who fulfilled inclusion criteria and consented for evaluation.

Tools used were:

1. Sociodemographic profile and clinical variables.

   A structured proforma assessing socio-demographic details outlining Name, Age, Sex, Occupation, Education and Marital status and current medications were entered. Further on the Overall scores of each of the scale were entered.(Appendix 3)

2. Indian Disability Evaluation and Assessment scale (IDEAS): A scale for measuring and quantifying disability in mental disorders developed by the Rehabilitation committee of Indian psychiatric society, December 2000.This scale contains a total of 4 items – self care, interpersonal activities, communication and understanding, and work. Each item scored on a severity scale from 0-4. DOI (duration of illness) was entered as a separate score. The global IDEAS score was represented as the sum of the individual and DOI scores.[67] (Appendix 4)
3. WHOQOL-BREF: (WHO Quality of Life group, 1996). This instrument has been developed to provide a short form of Quality of Life assessment that looks at domain level profiles using data from the pilot WHO QOL assessment and all available data from the field trial version of WHO QOL -100. This scale contains a total of 26 questions and assesses quality of life in 4 domains – physical, psychological, social and environmental.[72] (Appendix 5)
4. GAF (Global Assessment of Functioning): was a numerical scale with scores ranging from 0 through 100. It rated the social, occupational and psychological functioning. Highest score of 100 indicated superior functioning. From then on the scores in a diminishing manner represented absent/minimal symptoms, transient symptoms, mild symptoms, moderate symptoms, serious symptoms, major impairment, serious impairment, gross impairment and danger to self/others.[73] (Appendix 6)

Validation: After the second psychometric field test item reduction was done by internal consistency analysis i.e., Cronbach's alpha coefficient and factor analysis. Concept retention was obtained through the opinion of other renowned experts.

Response category format and endorsement pattern: The format was in tick boxes with open ended items. Endorsement is what each item attempts to capture before response category is made.

Scoring pattern is heterogeneous and describes the outcome of the measures.

The psychometric field trial was piloting on 100 subjects. Here information would be collected in face to face interviews. The information collected would be simple and easy to understand, appropriate to individual and culture as well as dimension specific.[74]

SAMPLE SIZE CALCULATION

Sample size is considered for the process of 2 psychometric field tests. The first psychometric field test (pilot, trailing) was done on 20 patients followed by item reduction and concept retention with experts. The second psychometric field test is piloting the scale, which will be done on 100 cases with information collected in face to face interviews. The sample size was based on the minimum required for an exploratory factor analysis.[75]

ETHICAL ISSUES

Verbal informed consent was obtained from every patient. They were told that they would be seen by the investigator on the day of assessment. The procedure of assessment was similar to that of a routine assessment done regularly in OPD. Patients were informed that in addition to the routine assessment the doctor would fill a few forms with the information gathered. This is information was to address the various areas of needs/deficits as a consequence of their illness and also to look at their support system, financial positions, burden of illness and overall satisfaction with services. This was explained in the local language in a simple understandable way. The patients were also informed that the purpose of the study was for research to improve care and provide services. Confidentially was ensured. It was emphasized

that their status of participation or nonparticipation in the study will not affect their care or treatment.

DATA ANALYSIS

As part of the data analysis, preliminary checks of skewness verified that our data were suitable for parametric analysis and the psychometric properties of ADAPT were analyzed at both the item and scale levels.

The patient characteristics, illness details, impairment details and treatment details were analyzed using descriptive statistics.

For evaluating the *internal consistency* of ADAPT, Cronbach's α coefficient was calculated. To determine the *convergent validity* of the ADAPT as a clinician-rated measure of the rehabilitation needs the total and subscale scores of ADAPT was correlated with IDEAS, WHO-QOL BREF and GAF total and sub scores.

The *Factor structure* of ADAPT was demonstrated by principal components analysis with varimax rotation. The analysis of data was carried out by SPSS (version 16.0).

STUDY DESIGN

The study was a prospective, observational study of 100 patients in a Rehabilitative setup being assessed once for a period of functioning over past 3 months. All patients enrolled in the study had a diagnosis of schizophrenia.

RESULTS

Development of the tool

Based upon the preliminary qualitative investigations and previous research on measurement tools, individual measurement items were generated that covered the spectrum of what the measure has to examine. An inventory based search of well known and standardised scales in psychiatry was done, focusing on scales measuring deficits and needs of patients. Some of these scales had already been standardized in the local context. The tools considered were Kennedy Axis V versions 1-3, LIFE scale, LIFE-RIFT, MRSS scale, IDEAS, CAN, CROS 3.0 and CASIG scale. [38, 43,58,67,68,69,70,71]

The following key themes were taken up from the available scales: Compliance, Psychopathology, Positive symptoms, Negative symptoms, Affective symptoms, Cognitive symptoms, Co-morbid substance use, Stress factors, Family factors, Vulnerability to abuse, Activities of daily living, Work, Legal factors, Hope & Global satisfaction.

These factors were then discussed with panel of experts and a few more domains were added according to their inputs. Additional factors derived were added to the list of themes. The items were then listed on cards and presented to experts in rehabilitation and asked to sequence and group. The items were then reduced to 22 domains and questions were screened for clarity and comparability and compatibility with each other.

The initial pilot testing were done on 20 subjects who gave feedback on ambiguities, offensive questions, difficult or time-consuming portions of the instrument as well as additional issues that needed to be addressed from a patient's point of view. The instrument was revised based upon pilot testing. This measure was named ADAPT by its developers (Assessment of Determinants Associated with Psychosocial Treatment) (Appendix 1).

The domains were subdivided into various items, which in turn had sub items. The items were further modified into sentence and the sub items describing them were incorporated into a manual. (Appendix 2)

In this way a 22 domain measure with a total of 50 items were formulated. The ADAPT scale was administered using all available sources of information – patient, family or close friends and daycare staff if appropriate referring to the 3 months prior to the interview. All these 50 items carried a response format of Yes/No for each item. The questions were worded in a way that a "YES" answer was loaded with a poor outcome.

Validation of the Tool:

100 patients fulfilling inclusion criteria and consenting to be seen were included and assessed on ADAPT. A brief socio-demographic profile as in Appendix 3 was collected. In addition, the IDEAS, WHO-QOL BREF version and Global Assessment of Functioning were also administered to check on correlation and for convergent validity with the ADAPT. All patients were accounted for in analysis and there were no missing data. The analysis of data was carried out by SPSS 16.0 version. The descriptive variables such as age, sex, occupation, marital status and education were categorized for the purpose of analysis.

Table 1 describes the 22 domains of the measure formed in this study along with its various items each. ADAPT scale domains were grouped into categories: positive symptoms (items 1-4), negative symptoms (items 5-8), affective symptoms (item 9), cognitive symptom

e 1: The Assessment of Determinants Associated with Psychosocial Treatment (ADAPT)- prevalidation version.

Domains	Number of items (see Appendix 1)
e Symptoms (A1-4)	Hallucinations, Delusions, Thought broadcasting/insertion/withdrawal, Disorganized, Bizarre behaviour
ve Symptoms (A5-8)	Affective blunting, Alogia, Avolition-apathy, Anhedonia
ve symptoms (A9)	Significant mood involvement
ive Symptoms (A10)	Difficulty in memory, attention & organization
mitant conditions (A11-13)	Psychiatric, Substance disorder, Medical conditions
ance Issues (A14-15)	Difficulty taking treatment, Difficulty following treatment advice
tion side effects (A16-20)	Neurological, Autonomic, Sexual, Psychological, Others
al reactions to illness/treatment (A21)	Presence of stigma
(A22-23)	Poor understanding/awareness, difficulty in daily coping with illness related problems
health services (A24-25)	Difficulty in accessibility, Comfort in relating to medical personnel
relationships and support (A26-29)	Absence of warm confiding relationship, Presence of expressed emotions, disability/mental illness in family member, finan problems
relationship (A30-32)	Absence of warm relationship with spouse, Difficulties in sexual relationship, Unable to stay with spouse
g (A33)	Inadequacy of living arrangements
anxiety (A34)	Presence of anxiety in social settings
skills (A35-39)	Poor life skills, verbal communication, nonverbal communication, in leisure activities, express needs /Assertiveness
es of daily living (A40)	Inability to responsible self care
ssion (A41)	Vulnerability to abuse/harm to self or others
and Employment (A42)	Inability to do proper work (housework/student/other nonformal work)
cant life events (A43-44)	Presence of distress by personal family or work place issues, Stress due to catastrophic events
criminal issues (A45)	In trouble for legal and criminal activities
and plans (A46-47)	Lack of goals for future, Poor level of satisfaction with life
unity services (A48-50)	Barriers to receiving support, Absence of day care provisions, Absence of supportive community

(item 10), Co morbidities (items 11-13), Compliance (items 14-15), Medication side effects (items 16-20),Personal reaction to illness (item 21), Insight (items 22-23), Services (items 24-25), Family relationship (items 26-29), Marital relationship (item 30-32), Housing (item 33), Social anxiety (item 34), Social skills (item 35-39), Activities of daily living (item 40), Aggression (item 41), Work & employment (item 42), Significant life events (items 43-44), criminal/legal issues (item 45), Hope (items 46-47) and Community (items 48-50). This was the first level of grouping.

Table 2 shows the socio-demographic profile of males and females as compared with age range, duration of illness, education, occupation and marital status. The mean age of the participants was 32.8 (standard deviation = 8) years. There were 63% of males and 37% of females in this study, thus showing male preponderance in this study. The mean age among males was 33 (standard deviation = 8) years. The mean age among females was 32.5 (standard deviation = 8.7) years. The mean duration of illness of the total population was 2.9 (standard deviation = 0.9) years. Among males the mean duration of illness was 3 (standard deviation = 0.8)years and among females it was 2.7 (standard deviation = 1) years. Out of the total sample; most of them had completed secondary school (56%). College educated were 28%. Majority of the participants were unemployed (40%). Out of those employed; most were unskilled labourers (27%). Among men; 26 (41.3%) were unskilled labourers and there was 1(1.6%) professional. Among women; 25 (67.6%) were unemployed. There were 10 (27%) housewives. 51% of participants were single. Most of the men were single[39 (61.9%)]. Most of the women were married [24 (64.9%)].

Table 2: Socio-demographic characteristics of the participants

Variables	Total sample N=100	Male N=63	Female N=37
Age [Mean (sd)]	32.8 (8.0)	33 (8.0)	32.5 (8.7)
Duration of illness [Mean (sd)]	2.9 (0.9)	3.0 (0.8)	2.7 (1.0)
Education			
No formal	5	3 (4.8%)	2 (5.4%)
Primary	11	6 (9.5%)	5 (13.5%)
Secondary	56	34 (44%)	22 (59.5%)
College	28	20 (31.%7)	8 (21.6%)
Occupation[1]			
Unemployed	40	23 (36.5%)	25 (67.6%)
Home maker	10	0	10 (27%)
Unskilled	27	26 (41.3%)	1 (2.7%)
Skilled	14	13 (20.6%)	1 (2.7%)
Professional	1	1 (1.6%)	0
Marital status			
Single	51	39 (61.9%)	12 (32.4%)
Married	46	22 (34.9%)	24 (64.9%)
Others	3	2 (3.2%)	1 (2.7%)

[1]= Highest level of occupation reached

Table 3: Impairment characteristics as in IDEAS

IDEAS	Degree of impairment		
	Mild	Moderate	Severe
Number (%)	46 (46%)	45(45%)	9(9%)

The next table, (Table 3) describes the disability characteristics of IDEAS scale. The score of global IDEAS was categorized into 3 categories – mild moderate and severe. Out of the total on the IDEAS scale 9% were severely impaired. 46% were mildly impaired and 45% were

moderately impaired. There were no patients in categories of 'no' and 'profound' impairment.

Table 4: Impairment characteristics as in GAF

GAF score	Number (%)
100-91	0
90-81	11
80-71	8
70-61	25
60-51	38
50-41	11
40-31	5
30-21	1
20-11	1
10-1	0

Table 4 shows the impairment characteristics of GAF. There were no scores in the extremes of functioning i.e., 10-1 and 100-91 categories. Most of the scores were in the range of 60-51 (38%). Only 1% scored in the range of 10-1 and 20-11.

Table 5: The quality of life profile as in WHOQOL-BREF

WHOQOL-BREF domain	Transformed score
WHOQOL 1	66.79 (15.9)
WHOQOL 2	53.43 (12.8)
WHOQOL 3	67.43 (21.0)
WHOQOL 4	71.09 (17.9)

Table 5 describes the quality of life profile of WHOQOL-BREF based on the 4 domains of scores.

Table 6 shows the assessment of the various determinants of the ADAPT scale. The frequency variables of ADAPT scale was computed and the percent calculated for each variable. Further on each of the variables were categorized according to the domains and the mean of each domain was calculated and entered in the above table as item score. Endorsement for the items was considered at 80%. Those items not being were also considered as they formed an important part of the construct. The step of item reduction in the development was not followed here as the tool formed was not considered as a diagnostic tool with the process of ruling out. The brevity of the tool was not required as it is not a screening tool to be used in a community setup. The main use intended for this tool was to profile the impairment and rehabilitation needs of population with chronic mental illness.

Table 6: The Assessment of Determinants Associated with Psychosocial Treatment (ADAPT)- Frequency of domain endorsement

Domains	Number of item endorsements[1]
Positive Symptoms (A1-4)	18.5
Negative Symptoms (A5-8)	54
Affective symptoms (A9)	3
Cognitive Symptoms (A10)	49
Concomitant conditions (A11-13)	15
Compliance Issues (A14-15)	33
Medication side effects (A16-20)	35.6
Personal reactions to illness/treatment (A21)	69
Insight (A22-23)	59
Mental health services (A24-25)	4
Family relationships and support (A26-29)	42.5
Marital relationship (A30-32)	59.4
Housing (A33)	27
Social anxiety (A34)	51
Social skills (A35-39)	55
Activities of daily living (A40)	25
Aggression (A41)	24
Work and Employment (A42)	56
Significant life events (A43-44)	45.5
Legal/criminal issues (A45)	2
Hope and plans (A46-47)	40
Community services (A48-50)	60.4

[1]= Items are described in appendix I.

Table7 overleaf, measures the internal consistency and reliability of the 22 domains of the ADAPT scale. The Cronbach's alpha coefficient was calculated for each of the domains.

Items showing adequate reliability with alpha coefficient of 0.7 or above were compliance issues, marital relationship, social skills and hope and plans.

Tables 7-11 show the validation procedure by checking the internal consistency both at a scale level and item level.

The 22 domains of the scale were divided into 3 broad categories according to the management strategies planned - those where medication management was indicated, where intervention for personal resources prevailed and a third where environmental intervention was needed.

The first category was where medical management was indicated. The domains considered under it were positive symptoms, negative symptoms, affective symptoms, cognitive symptoms, concomitant other conditions, medication side effects, social anxiety and aggression.

The second category focused on factors with locus of control within the patient and intervention sited there. It was called the personal resource management subscale and domains considered under it were compliance issues, insight, personal reactions to illness/treatment, social skills, activities of daily living, work & employment and hope & plans.

The third category was the subscale looking at external locus of control- with environment management and this subscale included domains of mental health services, family relationship & support, marital relationship, housing, significant life events, legal/criminal issues and community services.

Table 7: Internal consistency at scale level (22 domains).

Domain	Cronbach's α
Positive Symptoms (A1-4)	0.53
Negative Symptoms (A5-8)	0.65
Affective symptoms (A9)	Not applicable[1]
Cognitive Symptoms (A10)	Not applicable[1]
Concomitant conditions (A11-13)	-0.07
Compliance Issues (A14-15)	0.93
Medication side effects (A16-20)	0.13
Personal reactions to illness/treatment (A21)	Not applicable[1]
Insight (A22-23)	0.17
Mental health services (A24-25)	0.36
Family relationships and support (A26-29)	0.5
Marital relationship (A30-32)	0.87
Housing (A33)	Not applicable[1]
Social anxiety (A34)	Not applicable[1]
Social skills (A35-39)	0.83
Activities of daily living (A40)	Not applicable[1]
Aggression (A41)	Not applicable[1]
Work and Employment (A42)	Not applicable[1]
Significant life events (A43-44)	0.12
Legal/criminal issues (A45)	Not applicable[1]
Hope and plans U46-47	0.75
Community services V48-50	0.44
Total	0.69

[1]= As each domain had only one item; internal consistency analysis was not applicable.

Table 8 shows the internal consistency of the medical management subscale comprising 8 domains. Concomitant conditions showed low reliability of -0.07. There were no domains here with significant reliability seen. The domain with the highest but not significant reliability was negative symptoms.

Table 8: Internal consistency of Medical management subscale (8 domains).

Domains	Cronbach's α
Positive Symptoms (A1-4)	0.53
Negative Symptoms (A5-8)	0.65
Affective symptoms (A9)	Not applicable[1]
Cognitive Symptoms (A10)	Not applicable[1]
Concomitant conditions (A11-13)	-0.07
Medication side effects (A16-20)	0.13
Social anxiety (A34)	Not applicable[1]
Aggression (A41)	Not applicable[1]

[1]= As each domain had only one item internal consistency analysis not applicable.

Table 9: Internal consistency of Personal resource management subscale (8 domains).

Domains	Cronbach's α
Compliance Issues (A14-15)	0.93
Insight (A22-23)	0.17
Personal reactions to illness/treatment (A21)	Not applicable[1]
Social skills (A35-39)	0.83
Activities of daily living (A40)	Not applicable[1]
Work and Employment (A42)	Not applicable[1]
Hope and plans (A46-47)	0.75

[1]= As each domain had only one item internal consistency analysis not applicable.

Table 9 showed the internal consistency of the personal resource management subscale. Here domains of compliance issues, social skills and work and employment showed good and adequate reliability.

Table 10: Internal consistency of Environmental intervention subscale (8 domains).

Domains	Cronbach's α
Mental health services (A24-25)	0.36
Family relationships and support (A26-29)	0.5
Marital relationship (A30-32)	0.87
Housing (A33)	Not applicable[1]
Significant life events (A43-44)	0.12
Legal/criminal issues (A45)	Not applicable[1]
Community services (A48-50)	0.44

[1]= As each domain had only one item internal consistency analysis not applicable.

Table 10 shows the internal consistency of the environment intervention subscale. Domains here showing good reliability were marital relationship

Table 11: Internal consistency at scale level (3 subscales).

Subscale	Cronbach's α
Medical management	0.32
Personal resource management	0.52
Environmental intervention	0.34
Total	0.69

Table 11 shows internal consistency of the 3 subscales. The construct of rehabilitation as measured by ADAPT with all the 3 subscales together was better than any one subscale taken alone.

: Factor structure of ADAPT[a]

PT	Factors															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	.48	.16	-.14	-.43	.05	.19	.03	-.03	-.10	.05	-.03	-.20	.15	-.22	-.06	-.03
	.28	.07	-.15	-.43	-.22	.34	-.06	.16	.10	.06	.19	-.04	.16	.26	-.04	.19
	.35	.24	-.13	-.03	-.07	.26	.02	.23	.31	.05	-.07	.20	-.10	-.13	-.06	-.41
	.26	.09	.01	-.49	.00	.07	.22	-.10	-.02	-.22	.08	-.07	-.22	-.05	.04	-.27
	.55	-.28	.07	.01	-.01	-.01	.08	.10	.02	.17	.26	-.04	.07	.18	.22	-.14
	.51	-.30	.07	.10	-.18	.23	.12	-.12	.04	.04	.16	.06	.19	-.02	-.05	.21
	.58	-.06	.26	-.14	-.06	-.10	-.19	-.15	-.15	-.26	.16	.26	-.01	.10	-.07	.07
	.50	-.31	-.20	-.07	-.13	-.26	.31	.27	.08	-.04	-.03	-.20	.14	-.12	.13	-.00
	.04	.21	-.09	.35	.04	.19	.37	.09	-.11	-.08	.09	-.09	.08	.28	-.47	-.25
	.22	.34	.29	-.16	.04	.24	.13	-.06	.21	-.27	-.34	.02	.30	-.04	.23	.04
	-.09	.20	-.09	.25	-.38	.39	.23	.20	.12	-.23	.27	.20	.02	.03	.00	-.02
	.08	-.07	.10	-.34	.22	.04	-.19	.31	-.27	.09	.14	.18	.32	.13	.00	-.10
	-.03	-.15	-.24	.06	-.28	-.09	.12	.24	.09	.03	.44	-.20	-.18	-.05	.36	.10
	.24	.31	.44	-.21	-.24	-.06	.38	-.13	-.07	.41	-.07	-.04	-.21	.12	.12	.02
	.28	.36	.58	-.06	-.11	-.09	.34	-.06	-.14	.30	-.02	-.14	-.18	.14	.00	.01
	.18	.09	.02	.36	.23	.00	-.14	-.02	.42	-.18	-.12	-.01	.18	.12	.13	-.07
	.17	.09	.15	-.25	-.01	-.16	.16	.08	.03	-.39	-.34	-.18	-.04	.22	-.09	.27

-.04	.32	-.15	.11	.15	.14	-.23	-.17	.15	.49	-.14	.06	.14	.08	-.00	.17
.22	.52	.29	.20	-.12	.29	-.03	.11	.09	.04	-.05	.17	-.08	-.08	.05	.03
-.34	.33	-.10	.05	.10	-.01	.07	-.23	.29	.11	.09	.04	-.27	.11	.21	-.13
-.01	.19	.05	.17	-.01	-.10	-.30	-.14	-.12	-.09	.29	-.14	.14	.26	.47	-.12
.26	-.20	-.08	.00	-.03	-.06	-.54	.11	-.15	.04	-.23	-.24	-.12	.09	-.02	.16
.32	.21	.09	.31	-.16	-.03	.10	.31	.24	-.01	-.15	-.23	.14	.25	-.00	.23
.33	.16	.15	.17	.28	.18	-.18	.50	.04	.16	-.07	-.10	-.21	-.24	.13	.02
.14	-.12	.01	-.13	.05	.43	-.23	.24	.00	.36	.02	.12	-.04	-.12	-.12	.14
.12	.41	-.30	-.22	.11	-.51	.03	.10	.22	.12	.08	.04	.01	-.10	-.26	-.07
.15	.40	-.25	-.26	.35	-.38	-.09	.06	.28	.09	.16	.00	-.02	.06	-.11	.00
-.06	.19	-.08	.30	.12	-.21	.27	.10	.06	-.14	.08	.09	.13	-.43	.05	.30
.13	.33	.02	-.00	.03	-.17	.22	.35	-.43	.14	-.13	.11	.23	.01	.14	.04
.55	.42	-.47	.13	-.05	.05	.03	-.16	-.13	-.03	-.05	.03	-.05	-.08	-.01	.16
.50	.40	-.43	.12	-.14	.11	-.00	-.25	-.33	-.02	-.02	.02	.10	.01	.09	-.05
.49	.39	-.45	.08	-.01	-.01	-.09	-.24	-.27	.04	-.05	.01	.09	-.13	.21	-.08
.31	.01	.31	.22	.33	-.13	.00	.22	-.27	-.11	-.13	.34	-.27	-.05	.14	-.00
.37	-.15	.16	.28	-.11	-.31	.11	-.29	.12	.20	.06	.24	.12	.14	-.18	.04
.68	-.21	-.02	.02	.08	-.21	-.17	-.14	.01	.04	-.10	.13	-.10	.03	.01	.00
.77	-.38	.09	.13	.01	.02	-.03	-.05	.09	.18	.00	-.05	.02	-.01	.02	-.05
.72	-.36	.01	.26	-.06	.06	-.01	.00	.12	.06	.06	.05	.00	-.01	-.05	-.08
.56	-.21	-.13	.09	-.04	-.41	.17	.22	.09	.05	-.08	.02	.15	-.03	.01	-.21

.43	-.37	.03	.17	.20	.10	.25	-.28	.02	.12	-.15	-.06	-.06	-.14	-.01	-.00
.46	-.07	.10	-.47	-.11	.04	.05	.00	-.13	-.15	.16	.01	-.02	-.18	-.07	.02
.27	.37	.34	-.27	.16	-.14	-.31	-.00	.26	.01	.21	-.12	.16	.02	-.01	-.05
.54	.13	.05	-.09	-.16	-.10	-.19	.05	.13	-.25	.02	.48	-.12	.15	-.00	.08
.00	.26	-.11	.21	-.22	-.22	-.08	.10	-.17	.04	.38	.03	-.21	.00	-.17	.28
.00	.17	.55	.17	.29	-.10	-.07	.01	.00	-.16	.34	-.12	.07	-.21	-.06	-.00
.20	.18	.13	.41	.36	.12	-.08	.09	-.37	-.07	.13	-.26	.05	.11	-.21	-.18
.59	-.03	-.02	.07	.08	.23	-.19	-.06	.11	-.18	.07	-.23	-.29	-.01	-.04	.04
.59	.15	-.16	.04	.27	.07	.07	-.14	.04	-.19	.04	-.23	-.20	.03	-.06	.11
-.00	.15	.46	.05	-.22	.00	-.11	-.34	.05	.06	.19	-.12	.26	-.39	-.08	.03
-.01	-.16	-.09	-.10	.65	.16	.31	-.11	-.04	-.05	.19	.21	.01	.11	.16	.16
.00	-.12	-.13	-.16	.63	.20	.36	-.05	.09	.12	.19	.03	.03	.11	.03	.22

Method: Principal component Analysis. 17 components extracted.

Table 12 shows the factor structure of ADAPT. All items from A1 to A50 loaded into particular factors. There were 17 factors in total extracted by principal component analysis.

Among these 17 factors; those factors which cross loaded into one or more factors were excluded. Values clean loading into one factor were listed. Those domains without loading were also noted. 12 factors clean loaded and 5 factors had cross loaded. Those factors which had clean loaded represented items as listed. Each factor was labelled as described below:

Factor	Label	Components
1	POOR POSITIVE OUTLOOK	A5-A8= Negative symptoms (affective blunting, Alogia, Avolition/apathy, Anhedonia) A35-38=Social skills (poor life skills, poor verbal communication, poor nonverbal communication) A39=Social skills (Assertiveness) A46-47=Hope & Plans (Lack of goals for future, poor level of satisfaction)
2	FAMILY REACTION TO DULLNESS	A19=Medication side effects (Presence of psychological side effects) A27=Family relationship and support (Presence of expressed emotions)
3	ADVERSE SOCIAL ENVIRONMENT	A15=Compliance effects (target factors-finances, distance, supervision, support, dosing, escort contributing to difficulty in following treatment advice) A44=Significant life events (stress sustained due to catastrophic events) A48=Community resources (barriers to receiving support)
4	CHAOTIC BEHAVIOUR	A2=Positive symptoms (presence of delusions) A4=Positive symptoms (presence of disorganized/bizarre behaviour) A45=Legal/criminal issues (in trouble for criminal activities)
5	POOR COMMUNITY RESOURCES	A49=Community resources (Absence of day care provisions) A50= Community resources (Absence of supportive community)
6	POOR SERVICE ETHICS	A25=Mental health services (patient/family uncomfortable in which manner of doctor and others in the mental health team relates)
7	POOR INSIGHT	A22=Insight (poor understanding/awareness of having illness)
8	POOR ACCESS	A24=Mental health services (difficulty in access to services)
9	NEUROLOGICAL SIDE EFFECTS-FINANCIAL DIFFICULTY	A29=Medication side effects (presence of neurological side effects) A29=Family's relationship and support (Presence of problem with finances in the family)
10	SEXUAL SIDE EFFECTS	A18=Medication side effects (presence of sexual side effects)
15	AFFECTIVE REACTIVITY TO STIGMA	A9=Affective symptoms (presence of significant mood involvement)

16	IMPLAUSIBLE SYMPTOMS	A21=Personal reaction to illness/treatment (presence of stigma affecting patient's regular life) A3=Positive symptoms (Presence of thought broadcasting/thought insertion/thought withdrawal)

Factors 10, 11, 12, 13, 14 and 17 in Table 12, cross-loaded with other factors and lost its significance.

Table 13: Convergent validity of ADAPT with IDEAS

Correlations	IDEAS total score	ADAPT total score	Medication management subscale of ADAPT	Personal resource management Subscale of ADAPT	Environmental intervention Subscale of ADAPT
IDEAS total score	1	-.652**	-.621**	-.640**	-.200*
		.000	.000	.000	.046
ADAPT total score		1	.851**	.884**	.602**
			.000	.000	.000
Medication management subscale of ADAPT			1	.653**	.321**
				.000	.001
Personal resource management Subscale of ADAPT				1	.299**
					.003
Environmental intervention Subscale of ADAPT					1

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table 13 shows the convergent validity of ADAPT scale as compared to IDEAS scale. There was a significant correlation with the global IDEAS score and all the 3 subscales of ADAPT namely the medical management, personal resources and environmental intervention at the 0.001 level. Environmental intervention subscale was significant at the 0.05 level.

Table 14: Convergent validity of ADAPT with GAF

Correlations	GAF score	ADAPT total score	Medication management (ADAPT subscale)	Personal resource management (ADAPT subscale)	Environmental intervention Subscale of (ADAPT subscale)
GAF score	1	.775**	.677**	.681**	.451**
		.000	.000	.000	.000
ADAPT total score		1	.851**	.884**	.602**
			.000	.000	.000
Medication management Subscale of ADAPT			1	.653**	.321**
				.000	.001
Personal resource management Subscale of ADAPT				1	.299**
					.003
Environmental intervention Subscale of ADAPT					1

**. Correlation is significant at the 0.01 level (2-tailed).

Table 14 shows the convergent validity of the ADAPT scale as compared with GAF. Correlation was significant at 0.01 level for the 3 subscales namely the medical management, personal resources and environmental intervention of ADAPT and GAF score.

Table 15 shows the convergent validity of the ADAPT scale as compared with WHOQOL-BREF. Correlation was significant at 0.01 level for the WHOQOL domains 1, 2, 3 and 4 with the 3 subscales namely the medical management, personal resources and environmental intervention of ADAPT. Correlation was significant at the 0.05 level for WHOQOL domain 3, 4 with the environmental intervention subscale (Table 15 overleaf).

Table 15: Convergent validity of ADAPT with WHOQOL-BREF

	WHOQOL Domain 1	WHOQOL Domain 2	WHOQOL Domain 3	WHOQOL Domain 4	ADAPT total score	Medication management (ADAPT Subscale)	Personal resource management (ADAPT subscale)	Environmental intervention (ADAPT subscale)
WHOQOL Domain 1	1	.663**	.558**	.648**	.449**	.458**	.471**	.050
		.000	.000	.000	.000	.000	.000	.624
WHOQOL Domain 2		1	.558**	.737**	.364**	.387**	.280**	.190
			.000	.000	.000	.000	.005	.059
WHOQOL Domain 3			1	.702**	.475**	.415**	.431**	.254*
				.000	.000	.000	.000	.011
WHOQOL Domain 4				1	.476**	.423**	.433**	.242*
					.000	.000	.000	.015
ADAPT total score					1	.851**	.884**	.602**
						.000	.000	.000
Medication management (ADAPT Subscale)						1	.653**	.321**
							.000	.001
Personal resource management (ADAPT Subscale)							1	.299**
								.003
Environmental intervention (ADAPT subscale)								1

**. Correlation is significant at the 0.01 level (2-tailed)

*.Correlation is significant at the 0.05 level (2-tailed).

DISCUSSION

Schizophrenia is a disabling, chronic psychiatric disorder that poses numerous challenges in its management and consequences.

Effects of psychosocial treatments for chronic mental illness including schizophrenia, has important implications in terms of both treatment planning for individual patients and for large-scale mental health policies. Appropriate assessment of patients who pass through rehabilitation services is necessary if progress is to be accurately planned and charted. Any new assessment scale should cover a wide range of rehabilitation problems, yet it should be readily used in a busy rehabilitation service.[78]

The objective of this study is to develop and document the stages of development and validation of a questionnaire based on issues pertinent to patients with chronic mental illness. The items gathered in the first phase were discussed and organized, by experts, into a structure that made up the scale items and factors.

Candidate items for the scale were drawn from existing measures and from experts in psychiatric rehabilitation. They were organized into domains and items. The ADAPT scale had 22 domains with a total of 50 items.

Face and content validity- there was consistency among experts about how ADAPT appeared. It conveyed a reasonable way to gain information that it was aimed to obtain.

In the ongoing process of validation, 100 patients were used in the second level of psychometric testing. Among these patients, the socio-demographic profile showed a predominance of males compared to that of females. They also had a longer duration of illness and most of them were single. This finding supports that prevalence of schizophrenia

in single males is higher. Majority of the population had completed secondary school education.[79]

In the ADAPT scale the frequency with which the various domains were endorsed was noted. Among all the domains; personal reactions to illness & treatment had the highest endorsement indicating importance of stigma and discrimination in chronic mental illness.

The other domains endorsed most frequently were lack of or poor community services, marital relationship, insight, presence of negative symptoms, poor work & employment, social skills & social anxiety respectively.

The domain with the lowest endorsement was Legal/criminal issues. This possibly reflects the characteristics of the population that was screened.

The ADAPT was validated at the scale level using the internal consistency analysis among its various domains. Internal reliability of each domain was assessed using the Cronbach's alpha coefficients to indicate the extent to which the items are interrelated. A coefficient score of 0.7 or above is considered highly reliable or significant, and levels down to 0.3 as acceptable. The total alpha value was 0.69, with a range from high to poor levels of internal consistency between the items. Domains among which the highest was for compliance issues. The other significant domains were marital relationship, social skills and hope & plans. This finding shows that issues regarding compliance are important and should be first considered in any assessment/intervention of chronically mentally ill. The marital relationship along with plans and social skills were also significant.

Validity at item level was done by dividing the domain of ADAPT into 3 subscales i.e., those where medication management intervention is indicated, or where intervention for personal resources and third where environmental intervention is needed.

Internal consistency of medication management subscale showed that none of the domains had significant coefficient reliability. The domain with the nearest reliability was negative symptoms. Presence of concomitant conditions had the least reliability. This shows that the components taken there are not connected to each other and needs separate assessments. For example, negative symptoms, though as a group shows consistency by itself, they are different from positive symptoms or concomitant illnesses. It is to be noted however, that the number of endorsements in these was low.

Personal resource management subscale validity showed that compliance issues, social skills, hope & plans had the highest reliability. This shows the need for focus on compliance during intervention. However insight showed least significance.

Environment intervention subscale validity showed marital relationship was the domain with the highest significance. Significant life events affecting the person's life showed the least significance. The total internal consistency coefficient was 0.69.

Factor analysis was done mainly as a statistical procedure to place the various items in different domains. 17 factors were extracted, of which 5 lost significance as they cross-loaded. The 12 clean loading factors were labeled according to their components. The rehabilitation needs of patients with chronic schizophrenia being diverse, the factors not selected by the factor analysis were felt by experts as not reduce-able simply because the number of patients endorsing them was low. Also, it could mean that the construct of impairment and rehabilitation needs as perceived and endorsed by the patients as well as the relatives is different in this culture. This hypothesis needs to be further tested with external validations.

The impairment characteristics of the population were assessed with IDEAS and GAF. The quality of life was assessed using WHOQOL-BREF. On the IDEAS scale, a significant

proportion of this population were mildly or moderately impaired. A fraction of people were severely impaired. There were no patients who were profoundly impaired. A similar finding was obtained through GAF with majority of patients were moderately impaired. This goes to support the finding that in those with chronic illness most come under mild to moderate range of functioning.

In WHOQOL-BREF scale, Domain 4 had the highest correlation. It dealt with factors in the external environment, financial issues, satisfaction with self, services and transport. Domain 2 had the lowest score. It dealt with subjective feeling of concentration, enjoying life, appreciation and satisfaction of self as well as having negative feelings. This finding shows that interventions directed towards improving subjective quality of life is significant in chronic mental illness.

There was significant correlation (2 tailed tests at 0.01 and 0.05 levels) of the ADAPT scale within itself and its 3 subscales. Correlation was also significant while comparing ADAPT and its subscale components with that of IDEAS. Therefore it can be concluded that there is convergent validity between the ADAPT and IDEAS.

Similarly, there was significant correlation (at 0.01 level) between the ADAPT scale and its subscales with that of GAF.

All the domains of WHOQOL-BREF as well as Domain 3 and 4 correlated significantly with the total score of ADAPT. Domain 1 and 2 showed significant correlation with all the subscales except the environment intervention subscale. (0.01 and 0.05 levels, two tailed).

It can therefore be stated that the ADAPT scale measures factors similar to the IDEAS, the GAF and the WHOQOL-BREF scales. The convergent validity was good. This scale showing

convergence with the 3 scales also endorses the comprehensive nature of its assessment in a chronic mental illness like schizophrenia.

This study as presented primarily focuses on the first phase of development of the inventory in extensive detail. This has resulted in the limitation of not studying the diagnostic accuracy, reliability and some validity details of the measure. Further development and larger level field tests are required before standardisation and cultural validations are complete.

This is a screening and assessment tool rather than a rating scale. Hence quantitative measurements are not possible. Developing the options to include gradations in items responses rather than a simple "yes/no" answer may allow for it to be used to quantify different concepts/domains. Such inputs may allow for the scale to be used for rating and also to measure small changes in a longitudinal time frame to track of improvements or deterioration in circumstances. This study has used a conservative sample size for the development of the inventory.

The future work on this measure will, over time, enhance the psychometric maturity of the scale by yielding itself to documenting it sensitivity, specificity and predictive values as an appropriate gold standard can be identified for its threshold values. Test-retest reliability and inter-rater reliability will be an area of stress in further studying the psychometric properties of ADAPT in multiple settings as will be its divergent, discriminate and criterion validity.

The learning from this study has been that a scale to assess the needs of chronically mentally ill individuals has been reliably made. The scale is valid and useable in a tertiary care setting. The measure has good internal consistency and good convergent validity with other established scales. The construct of rehabilitation as measured by ADAPT with all the 3 subscales together was better than any single domain subscale taken alone.

Notwithstanding these caveats, it is evident that in addition to exploring the face and content validity, this study has documented the internal consistency using the appropriate method,

and has also attempted external validation of the conceptualized domains with an exploratory factor analysis. A measure in the area of psychiatric rehabilitation for clinical and research use India is made available.

CONCLUSIONS

- This study was aimed at the development and validation of a comprehensive multi-dimensional measure in order to assess the rehabilitation needs of patients with chronic mental illness.
- The ADAPT (Assessment of Determinants in Psychosocial Treatment) was developed according to standard psychometric protocols and validated.
- The measure was conceptualized as an inventory, to screen for determinants of psycho-social management of the chronic mentally ill, in psychiatric rehabilitation settings, rated by clinicians, at face-to-face interviews using information from multiple sources.
- The scale has face and content validity according to experts and also has shown convergent validity with 3 other established scales – the IDEAS, the GAF and the WHOQOL-BREF. This means that the ADAPT is measuring factors comparable to the other three scales.
- On factor analysis, the scale can statistically cluster 12 domains from the factors looked at. As the rehabilitation needs of patients were diverse, experts felt that the factors not selected by the factor analysis could not be reduced simply because the number of patients endorsing them was low.
- This scale showing convergence with 3 other scales also endorses the comprehensive nature of its assessment in chronic mental illnesses like schizophrenia.

LIMITATIONS & FUTURE DIRECTIONS:

- This study as presented primarily focuses on the first phase of development of the inventory. This has resulted in not studying the diagnostic accuracy, reliability and some validity details of the measure.
- Further development and larger level field tests are required before standardisation and cultural validations are complete. This is a screening and assessment tool rather than a rating scale. Hence quantitative measurements are not possible.
- Developing the options to include gradations in item responses rather than a simple "yes/no" answer may allow for it to be used to quantify different concepts/domains.
- The future work on this measure will, over time, enhance the psychometric maturity of the scale by yielding itself to documenting it sensitivity, specificity and predictive values as an appropriate gold standard can be identified for its threshold values.
- Test-retest reliability and inter-rater reliability will be an area of stress in further studying the psychometric properties of ADAPT in multiple settings as will be its divergent, discriminate and criterion validity.
- The possibility of screening for rehabilitation needs through the use of ADAPT may be helpful in identifying probable cases of chronic mental illness with significant impairment.
- IN CONCLUSION, the ADAPT proves to be a psychometrically sound measure for use by clinicians in a psychiatric rehabilitation service in India.

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